MARKED-UP VERSION OF AMENDED CLAIMS

1. (Amended) An auxiliary device for editing documents, comprising:

a computer peripheral having an internal circuit with a single-chip microprocessor; and

a modular key set with a document editing function; the modular key set being arranged on the computer peripheral and connected to an I/O bus of the single-chip microprocessor; the single-chip microprocessor generating a predetermined pseudo composite-key code corresponding responsive to an individual key in the modular key set being pressed by a user; whereby the user can directly edit a document by using the modular key set provided on the computer peripheral without chording.

2. (Amended) The auxiliary device for editing documents as in claim 1, wherein a short-cut key is further provided on the computer peripheral to invoke an associated program.

3. (Amended) The auxiliary device for editing documents as in claim 1, wherein the computer peripheral is provided with a plurality of composite function keys and the functions of the composite function keys are controlled by an extra adding switch key to operate in one of a standard function key mode or an augmentation mode, the switching state

of the a status of the extra adding switch key can being manifested by a light-emitting element.

5. (Amended) The auxiliary device for editing documents as in claim 1, wherein the a code conversion of the predetermined pseudo composite-key code can be embodied is accomplished by sending specific codes to a code-conversion application software.

6. (Amended) The auxiliary device for editing documents as in claim 1, wherein the computer peripheral is a keyboard.

7. (Amended) The auxiliary device for editing documents as in claim 1, wherein the modular key set is composed of a cut key, a paste key, a copy key and a mark key.

8. (Amended) The auxiliary device for editing documents as in claim 1, wherein the predetermined pseudo composite-key key code of the modular key set has separation larger than at least a 1.5-2ms separation between successive key codes.

9. (Amended) The auxiliary device for editing documents as in claim 1, wherein the modular key set is arranged beside adjacent the arrow keys on keyboard.

10. (Amended) The auxiliary device for editing documents as in claim 7, wherein the ~~composite key~~ predetermined pseudo composite-key code of the modular key set ~~that~~ corresponding to the cut key is CTRL+X.

11. (Amended) The auxiliary device for editing documents as in claim 7, wherein the ~~composite key~~ predetermined pseudo composite-key code of the modular key set ~~that~~ corresponding to the paste key is one of CTRL+V, or ALT+E, P.

12. (Amended) The auxiliary device for editing documents as in claim 7, wherein the ~~composite key~~ predetermined pseudo composite-key code of the modular key set ~~that~~ corresponding to the copy key is CTRL+C.

13. (Amended) The auxiliary device for editing documents as in claim 7, wherein the ~~composite key~~ predetermined pseudo composite-key code of the modular key set corresponding to the mark key is one of left Shift or right Shift.

14. (Amended) The auxiliary device for editing documents as in claim ~~3~~ 1, wherein the modular key set provides editing functions including ~~the functions of~~ redo, undo, open, new, bold, save, find, forward and send.

15. (Amended) The auxiliary device for editing documents as in claim 14, wherein the predetermined pseudo composite-key code of the modular key set for redo is ALT+E, R.

16. (Amended) The auxiliary device for editing documents as in claim 14, wherein the predetermined pseudo composite-key code of the modular key set for undo is ALT+E, U.

17. (Amended) The auxiliary device for editing documents as in claim 14, wherein the predetermined pseudo composite-key code of the modular key set for bold is CTRL+B.

18. (Amended) The auxiliary device for editing documents as in claim 14, wherein the predetermined pseudo composite-key code of the modular key set for open is one of CTRL+O or ALT+F, O.

19. (Amended) The auxiliary device for editing documents as in claim 14, wherein the predetermined pseudo composite-key code of the modular key set for new is one of CTRL+N or ALT+F, N.

20. (Amended) The auxiliary device for editing documents as in claim 14, wherein the predetermined pseudo composite-key code of the modular key set for save is one of CTRL+S or ~~ALT+P~~ ALT+F, S.

21. (Amended) The auxiliary device for editing documents as in claim 14, wherein the predetermined pseudo composite-key code of the modular key set for find is one of CTRL+F, or ~~CTRL+E~~ ALT+E, F.

22. (Amended) The auxiliary device for editing documents as in claim 14, wherein the predetermined pseudo composite-key code of the modular key set for forward file is ~~ALT+F+D~~ ALT+F, D.

23. (Amended) The auxiliary device for editing documents as in claim 14, wherein the predetermined pseudo composite-key code of the modular key set for send file is ALT+S.

24. (Amended) The auxiliary device for editing documents as in claim ~~13~~ 2, wherein the predetermined pseudo composite-key code of the modular key set for the short-cut key is ~~CRTL+ALT+~~ CTRL+ALT+ a predetermined ~~specific~~ non-shift key.

25. (Amended) The auxiliary device for editing documents as in claim 1, wherein the predetermined pseudo composite-key code of the modular key set comprises the a combination of operations such as including pressing, releasing and pressing again over those keys including Shift, CTRL, ALT and standard keys is also embraced in the scope of the present invention.

REMARKS

This case has been carefully reviewed and analyzed in view of the Official Action dated 17 January 2003. Responsive to the rejections made in the Official Action, Claims 1-3 and 5-25 have been amended to clarify the language thereof and the combination of elements that form the invention of the subject Patent Applcation.

A red-lined copy of the drawings of FIGS. 5, 7 and 8 are enclosed for the Examiner's approval. It is proposed to add reference numerals in each of those Figures that were inadvertently omitted therefrom. Corrected formal drawings will be submitted subsequent to the Examiner's approval of the red-lined drawings and allowable subject matter being found.

The Specification and Abstract have been amended by replacement of the original Specification and Abstract, as filed, with a Substitute Specification and Abstract, which was the most efficient means to correct the numerous idiomatic, grammatical and translational errors found therein. It is believed that the subject matter disclosed by the Substitute Specification was previously disclosed in the Specification and Claims, as filed, and the accompanying drawing Figures. No new matter has been added by these changes. Additionally, a marked-up version of the original Specification and Abstract is attached to this Amendment in compliance with MPEP § 608.01(q). The Substitute Specification and Abstract include the same changes as are indicated in the marked-up copy of the Specification and Abstract. It is believed that the Substitute Specification corrects those informalities kindly noted by the Examiner in the Official Action.

In the Official Action, the Examiner rejected Claims 1, 5-13 and 23-25 under 35 U.S.C. § 103, as being unpatentable over Paolini, U. S. Patent #6,429,793, in view of Kraft, U.S. Patent #6,309,305, and further in view of Chiang, U.S. Patent #6,154,758. The Examiner stated that the Paolini reference disclosed an auxiliary device for editing a document, with a computer peripheral having an internal circuit with a single-chip microprocessor, and a key set arranged on a computer peripheral and connected to an I/O bus of the microprocessor. The Examiner further stated that the microprocessor generated a pseudo composite-key code corresponding to a key in the modular key set pressed by a user. The Examiner, however, admitted that the reference failed to disclose a modular key set with document editing function, whereby the user can directly edit the document by using the module key set provided on the computer peripheral. The Examiner then refers to the Kraft reference as disclosing a modular key set with document editing function, whereby the user can directly edit a document by using the modular key set provided on the computer peripheral. The Examiner then concludes that it would have been obvious to one of ordinary skill in the art at the time of the invention to implement a modular key set in the Paolini apparatus in order to provide a method of transferring data from one application to another. The Examiner then admits that both he Paolini and Kraft references fail to disclose use of a single chip processor. However, the Examiner then refers to the Chiang reference as disclosing a single chip microprocessor in converting display texts from one format to another. The Examiner then concludes that it would have been obvious to one of ordinary

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skill in the art at the time of the invention to use a single chip microprocessor as shown in Chiang in the Paolini and Kraft apparatus.

It is respectfully submitted that the Paolini reference is directed to a system and method for translating keyboard scan codes from a variety of different functional keyboards and devices into target virtual keycodes which may be utilized by a target processing host system. The Paolini reference is focused on an extra adapter with the capability to transfer some different functional device codes (virtual keycodes for example) to a target host operating system and thus has the potential to be incompatible with some target host systems. Further, as seen in FIG. 1 and described in Column 4, Lines 31-39, the system utilizes a keyboard and mouse adapter 120 containing an I/O controller to issue interrupts to the microprocessor 102. Thus, the reference describes the microprocessor I/O bus being connected to the adapter, rather than <u>a modular key set being connected to an I/O bus of the</u> <u>single-chip microprocessor</u>. In fact, rather than being connected directly to the processor I/O bus, the keyboard 140 and mouse 145 are coupled through the adapter 120 to a PCI local bus 106 through an expansion bus interface 114, the PCI bus 106 being coupled to the microprocessor I/O bus through a host/PCI bridge 108. Further, the keys of the keyboard are interfaced to the adapter through a conventional scan code arrangement and thus is not adaptable for coupling to a microprocessor I/O bus. As seen in Paolini, Col. 1, lines 35 -37, Col. 2, lines 38 - 41 and Col. 4, lines 53 -68, just a standard keyboard scan key matrix for generating scan code is disclosed, and fails to disclose or suggest a modular key set and a

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pseudo composite-key code (combination key code) table. The method of comparing the

pseudo composite-key codes and "virtual keycodes" is also different than that of the instant

invention.

The Kraft reference does not overcome the deficiencies of Paolini. The Kraft

reference is directed to a portable telephone incorporating a clipboard for copying and

pasting text. The mobile phone is not a computer peripheral, cannot operate in a

WINDOWS operating system, and requires complex hardware or target software to support

the functions disclosed by the reference. The reference fails to disclose or suggest <u>a modular</u>

<u>key set with a document editing function and a pseudo composite key table</u>, with the

modular key set <u>being arranged on a computer peripheral and connected to an I/O bus of the</u>

<u>single-chip microprocessor.</u>

The Chiang reference. does not overcome the deficiencies of Paolini combined with

Kraft. The Chiang reference is directed to a text conversion method for computer systems.

The single chip microprocessor 12 is coupled to I/O circuitry 18 through a data bus 36, the

I/O circuitry 18 being coupled to a keypad 24 through the data bus 42. Thus, here too, the

reference fails to disclose or suggest the modular key set being <u>connected to an I/O bus of</u>

<u>the single-chip microprocessor</u>. None of the references disclose or suggest the module key

set being directly connected to the single-chip microprocessor, as provided in the invention

of the subject Patent Application. By the direct connection, the requirements for driver

software and the potential for hardware incompatibility are avoided.

Thus, the combination of Paolini, Kraft and Chiang cannot make obvious the invention of the subject Patent Application, as now claimed. Further, the Claims dependent on independent Claim 1 are believed to provide further patentably distinct limitations for the invention of the subject Patent Application, but are at least patentably distinct for the same reasons as the independent Claim. With respect to the references relied upon in rejecting the dependent Claims, the Krause, et al. reference, U.S. Patent #6,154,757, is directed to an electronic text reading environment enhancement method and apparatus. The reference discloses a software application allowing users to define the short-cut keys through a dialog box. Once the short-cut keys are redefined, the user must remember the short-cut key definitions, or they are unable to be used. Whereas in the invention of the subject Patent Application, the short-cut keys are real physical keys that are dedicated to the launching of specific associated programs, and are thus labeled accordingly. By the arrangement of the invention of the subject Patent Application, document editing functions are provided to a user through operation of individual keys, without the necessity for chording, operating several keys simultaneously.

The Hsu, et al. reference, U.S. Patent #6,320,519, is directed to a keyboard and method for switching key code with a single modifier key. The reference discloses a keyboard having NUMLOCK, CAPLOCK AND SCROLLLOCK for showing the status, and a plurality of switch keys such as the ALT key, CTRL key, or the SHIFT key serving as a modifiable key for toggling the first standard key code and second extended key code.

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The modifiable keys, i.e. ALT key, CTRL key and SHIFT key, serve as switch keys. Thus, the key codes of the switch keys are transferred to the Windows operating system as the key is pressed. The key codes for the modified function then follow, which for some operating systems will lead to malfunctions. As an example, if the CTRL key n the Hsu, et al. is programmed to provide the "Send" function, the key will programmed to send the ALT+S key codes. Thus, the operating system will receive the scan code sequence of "CTRL, ALT+S." Such a sequence may cause problems in some operating systems or application software packages. Hence, the Hsu, et al. reference provides traditional hot key functions only, and has no modular key set for generating pseudo composite-key code and has no capability to provide internal application control functions such as CUT, PASTE, COPY, NEW, OPEN, SAVE, REPLY, SEND, UNDO, REDO, etc.

Whereas in the invention of the subject Patent Application, an extra switch key 3 (labeled OFFICE KEY LOCK) is utilized to switch the functions of the modifiable keys (function keys F1 through 12). Thus, in the invention of the subject Patent Application, only the desired key codes are transmitted to thereby avoid any possibility of software incompatibility.

For all the foregoing reasons, it is now believed that the subject Patent Application

has been placed in condition for allowance, and such action is respectfully requested.

Respectfully submitted,
For: ROSENBERG, KLEIN & LEE

David I. Klein
Registration #33,253

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Suite 101
3458 Ellicott Center Drive
Ellicott City, MD 21043
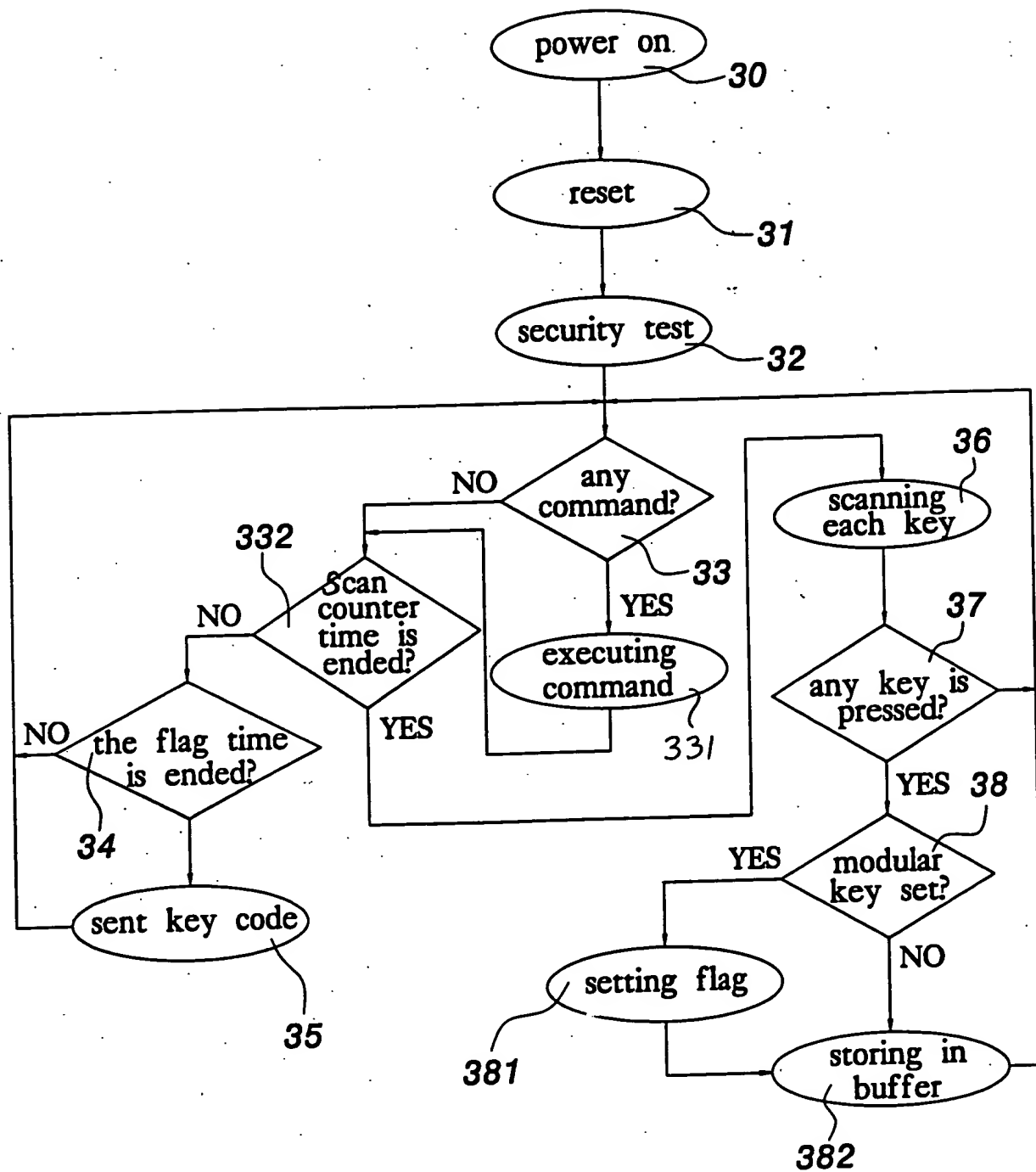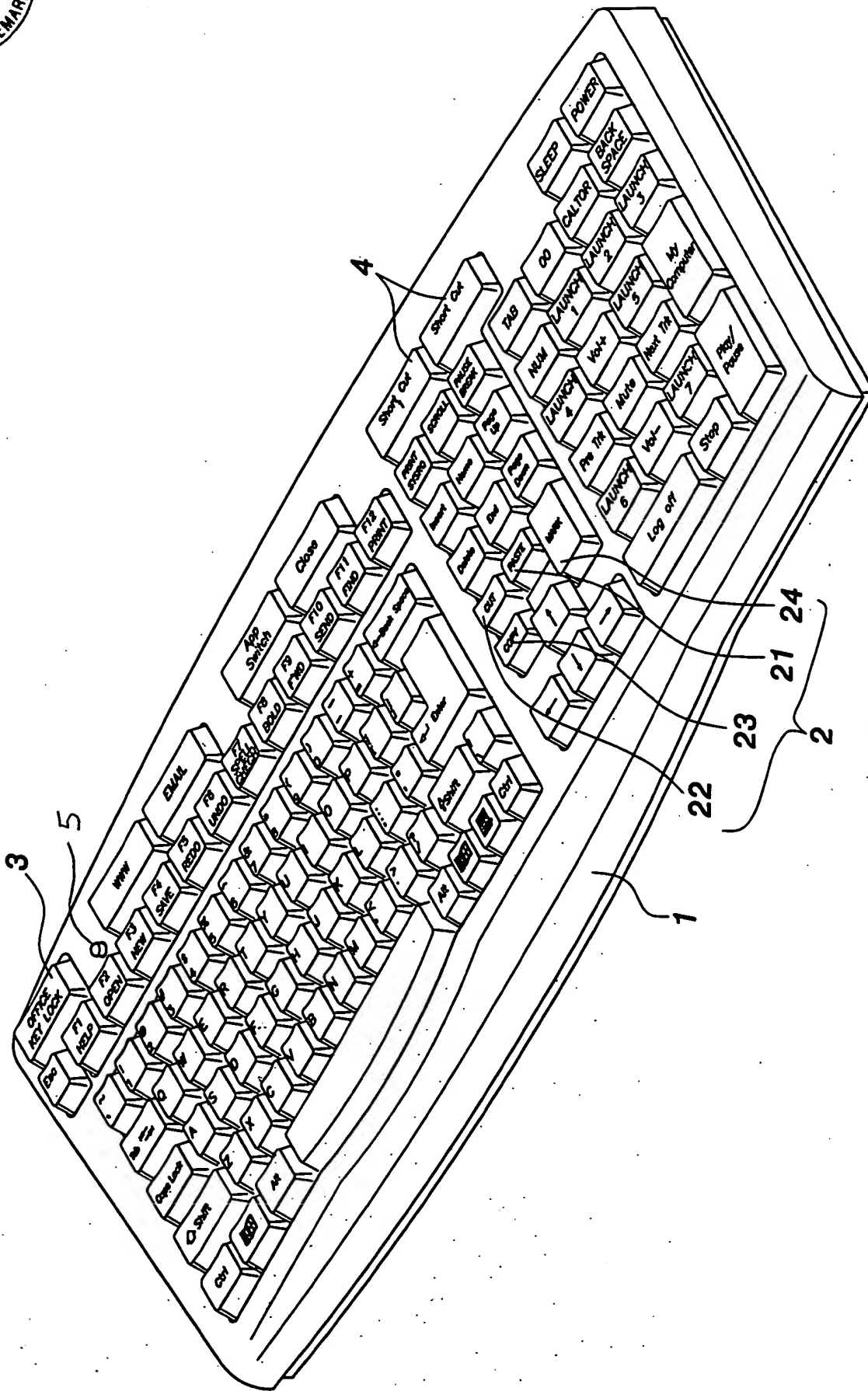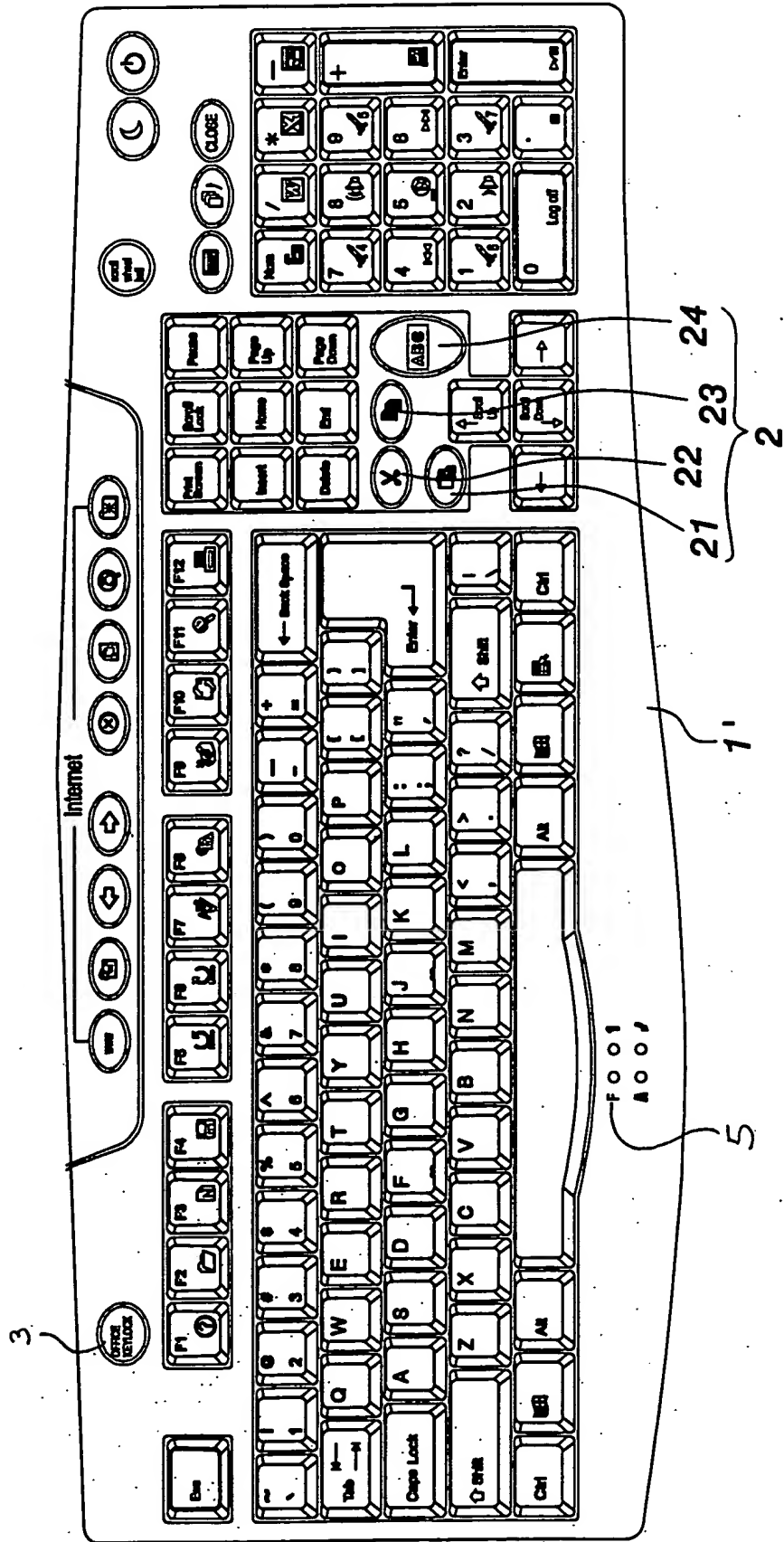(410) 465-6678

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PATENT TRADEMARK OFFICE

21

power on —30

reset —31

security test —32

any command? —33

NO

YES

executing command
331

Scan counter time is ended? 332

NO

YES

the flag time is ended? 34

NO

NO

sent key code

35

scanning each key 36

any key is pressed? 37

YES 38

modular key set?

YES

NO

setting flag

381

storing in buffer

382

FIG.5

FIG. 7

FIG.8